Biological Investigation of Mosquito Lake, Northwest Territories

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March 1985

Canadian Data Report of Fisheries and Aquatic Sciences No. 505

85-3933/

Canadian Data Report of Fisheries and Aquatic Sciences

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Le titre exact paraît au haut du résumé de chaque rapport.

Canadian Data Report of

Fisheries and Aquatic Sciences 505

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by

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This is the 73rd Data Report

from the Western Region, Winnipeg

Minister of Supply and Services Canada 1985

Cat. no. FS 97-13/505E ISSN 0706-6465

Correct citation for this publication is:

Roberge, M.M., and J.B. Dunn. 1985. Biological investigation of Mosquito Lake, Northwest Territories. Can. Data Rep. Fish. Aquat. Sci. 505: iv + 24 p.

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ABSTRACT

Roberge, M.M., and J.B. Dunn. 1985. Biological investigation of Mosquito Lake, Northwest Territories. Can. Data Rep. Fish. Aquat. Sci. 505: iv + 24 p.

An experimental gillnetting and biological sampling program was conducted on Mosquito Lake, Northwest Territories in 1983. Biological data presented in this report include length, weight, age and maturity characteristics of the fish species caught. Water temperature and dissolved oxygen profiles are also provided.

Key words: angling, catch/effort; catch composition; gillnetting; lake trout; lake whitefish; population structure; sport fishing; tagging.

RESUME

Roberge, M.M., and J.B. Dunn. 1985. Biological investigation of Mosquito Lake, Northwest Territories. Can. Data Rep. Fish. Aquat. Sci. 505: iv + 24 p.

En 1983, on a réalisé un programme de pêche expérimentale aux filets maillants et d'échantillonnage biologique au lac Mosquito (Territoires du Nord-Ouest). Les données biologiques présentées dans ce rapport portent sur la longueur, le poids, l'âge et les caratéristiques de maturité des espèces de poisson prises. On y présente aussi des profils sur l'oxygène dissout et la température de l'eau.

Mots-clés: pêche à la ligne; prises/effort; composition des prises; pêche au filet maillant; touladi; corégone, grand; composition de la population; pêche sportive; étiquetage.

INTRODUCTION

In 1979, the Department of Fisheries and Oceans (DFO) began a five year program to evaluate sport fishing on the major lakes in the District of Keewatin, Northwest Territories; lake trout, Salvelinus namaycush (Walbaum) being the species of primary interest. This study was undertaken in response to increased sport fishing lodge development in the district and a proposal from the lodge owners to have the major sport fishing lakes in the area evaluated to determine if they could be designated as high quality fishing lakes. A "high quality fishery" for lake trout is one in which the population structure of lake trout is maintained such that large lake trout are available to anglers on a long-term basis. This is accomplished primarily by allowing very limited exploitation of the stock (i.e. reduced catch and possession limits).

The major lakes in the Keewatin under consideration are Kasba, North Henik, South Henik, Dubawnt, Nueltin, Snowbird and Mosquito lakes, all of which have existing or proposed sport fishing lodges (or outpost camps). It is intended that over the five year period these lakes will be surveyed to gain a better understanding of the sport fishing industry, to obtain lake trout population and harvest data and to assess the potential of these lakes to provide high quality fisheries for lake trout. Results of this program will culminate in a sport fishery management plan for these lakes.

The lakes surveyed and reported to date include Kasba Lake (Falk et al. 1982a), Dubawnt Lake (Roberge 1984), and North Henik, South Henik, Nueltin and Snowbird lakes (Roberge et al. 1984). This report presents information collected in 1983 on the biological status of the fish species from Mosquito Lake. Information on the sport fishery harvest was not available in 1983 as the lodge remained closed throughout the sport fishing season.

STUDY AREA

Mosquito Lake (62°34'N, 103°19'W) situated 503 km west of Eskimo Point (Fig. 1), is part of the Dubawnt River system. The lake has a maximum length of 30.5 km, a maximum width of 23.7 km, elevation of 297 m and a total surface area of 33 439 ha (Inven. Can. Freshwater Lakes 1969) (Fig.2). The topography of Mosquito Lake is typical tundra, a rolling treeless landscape. MacDonald and Fudge (1979) describe the geology, climate and other limnological conditions of the area.

METHODS AND MATERIALS

EXPERIMENTAL GILLNETTING

Experimental gillnetting was carried out using standard gangs composed of 47.5 m lengths each of 38, 64, 89, 114 and 139 mm (stretched measure) mesh nylon gillnets. Set locations are depicted in Fig. 3. The average set duration was 22 hours. Catches were recorded by site number, mesh size and species. Large, active and unharmed lake trout caught in the nets were measured for fork length (±1 mm), tagged and released.

TAGGING

Lake trout were captured for tagging using small mesh gillnets and by angling. Gillnets, composed of varying lengths of 38 and 64 mm mesh, were set in shallow water and checked every 6 to 23 hours, weather permitting. Trout caught were placed in a measuring trough to obtain fork length (±1 mm). White Floy (spaghetti) tags containing a reference number and return address were attached using a Dennison tagging gun. Tags were inserted in the left side of the fish at the base of the dorsal fin and anchored between the pterygiophores. Fish were then returned to the water and released or, if necessary, held until they recuperated and then released.

BIOLOGICAL SAMPLING

Fish were sampled from the experimental and tagging nets and from those angled for fork length (±1 mm), round weight (±50 g), aging structures (otoliths/scales), sex, and stage of maturity. Sex and the relative stage of maturity were determined by examination of the gonads and coded according to the stages described by Falk et al. (1982a,b).

Sagittal otoliths were taken from lake trout and burbot and stored dry in coin envelopes. In the laboratory, the otoliths were selectively ground on a carborundum stone and placed in a cleaning/clarifying solution of benzyl-benzoate before being read under a binocular dissecting microscope (x30). A reflecting light source against a black background was used to emphasize the annual growth zones which were counted to determine the ages.

Scales were taken from cisco, lake whitefish, round whitefish, northern pike and Arctic grayling as described by Hatfield et al. (1972) and stored dry in coin envelopes. In the laboratory, scales were mounted between glass slides and the completed annuli counted on the image produced by an Eberbach microprojector (x40).

Ovaries were removed from mature lake trout collected over the summer and placed in a 10% formalin solution. In the laboratory, the ovaries were weighed (wet weight ±1 g) and total number of ova from each ovary were counted after removal of the ovarian tissue. Mean ovum diameter was determined from an average of 20 ova taken from each of the anterior, middle and posterior portions of both ovaries (n=120).

Weight-length relationships were calculated using least squares regression analysis on logarithmic transformations of fork length and round weights. The relationship is described by the following equation:

$$\log_{10} W = a + b (\log_{10} L)$$

where W = weight in grams
L = fork length in millimeters

Relative condition factor (K), a measure of the plumpness of a fish, was determined using the formula:

$$K = \frac{W \times 10^5}{L^3}$$

where W = weight in grams
L = fork length in millimeters

DATA ANALYSIS

The Statistical Analysis System (1979) was used to generate length, weight, sex, age and maturity tables.

WATER TEMPERATURE

Water temperatures (°C) were recorded every eight days during the course of the study. Temperatures were recorded at one metre intervals using a Yellow Spring temperature meter.

ACKNOWLEDGMENTS

The authors wish to thank J. Kayfes, owner of Tukto Lodge for his cooperation and assistance in the data collection. Assistance in the field was provided by H. Zeller. Scales were aged by C.J. Read. Figures were prepared by Graphics Services, Freshwater Institute. S. Ahlgren typed the final report. M. Layton and L. Fletcher reviewed the report.

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Table 1. Catch and catch per unit effort (CPE) data for fish caught by experimental gillnets from Mosquito Lake, 1983.

		Mesh Size (mm)					Total Catch	CPE[1]
		38	64	89	114	139		
Lake trout	No.	92	95	86	78	52	403	2.72
	%	22.8	23.6	21.3	19.4	12.9	40.3	
Lake whitefish	No.	50	55	50	68	29	252	1.70
	%	19.8	21.8	19.8	27.0	11.5	25.3	
Round whitefish	No.	15	17	3	-	-	35	0.24
	%	42.9	48.6	8.6	-	-	3.5	
Cisco (spp)	No.	296	5	-	3	-	304	2.05
	%	97.4	1.6	-	1.0	-	30.5	
Arctic grayling	No.	1	-	-	-	-	1	0.01
	%	100.0	-	-	-	-	<0.1	
Burbot	No.	-	1	-	-	-	1	0.01
	%	-	100.0	-	-	-	<0.1	
Total	No.	454	173	139	149	81	996	6.72
	%	45.6	17.4	14.0	15.0	8.1		

[1] No. fish caught/100 m gillnet/24 hours.

Table 2. Biological data by length interval for lake trout caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
175	-	-	-	-	-	-	-	-	-	-	-	-						
200	1	224	100	-	0.89	0	-	-	-	-	-	-	1	195	50	-	0.67	0
225	1	232	100	-	0.80	0	-	-	-	-	-	-	2	216	100	0	1.01	0
275	1	291	200	-	0.81	0	-	-	-	-	-	-	1	232	100	-	0.80	0
300	-	-	-	-	-	-	-	-	-	-	-	-	1	291	200	-	0.81	0
325	-	-	-	-	-	-	-	-	-	-	-	-	1	301	300	-	1.10	0
350	2	355	475	35	1.07	0	1	339	400	-	1.03	0	1	339	400	-	1.03	0
375	3	383	550	0	0.98	0	-	-	-	-	-	-	3	361	500	50	1.06	0
400	2	416	700	71	0.98	0	3	393	683	76	1.12	0	7	386	614	80	1.06	0
425	3	432	867	76	1.08	0	1	424	850	-	1.12	0	3	418	750	100	1.02	0
450	5	464	1120	84	1.12	0	1	428	850	-	1.08	0	4	431	863	63	1.08	0
475	3	481	1533	828	1.38	67	5	465	1160	89	1.15	0	11	464	1123	98	1.13	0
500	12	514	1608	144	1.18	58	4	484	1263	138	1.11	50	7	483	1379	509	1.23	57
525	18	537	1794	224	1.16	72	10	508	1425	125	1.08	20	22	512	1525	162	1.14	41
550	17	561	2106	139	1.20	82	14	537	1818	128	1.17	50	37	537	1805	186	1.17	63
575	21	590	2348	195	1.14	100	13	560	2077	238	1.18	69	41	562	2093	185	1.19	77
600	18	611	2544	354	1.12	94	13	586	2204	152	1.10	77	52	587	2293	191	1.13	91
625	10	632	2745	180	1.09	90	22	613	2518	239	1.10	100	60	613	2530	292	1.11	98
650	7	657	2900	257	1.02	86	19	637	2942	334	1.14	100	32	636	2874	302	1.12	97
675	7	682	3593	394	1.13	100	15	662	3083	287	1.06	100	29	660	3025	285	1.05	95
700	8	710	4006	519	1.12	100	12	688	3342	474	1.03	100	26	686	3434	452	1.07	100
725	1	746	3900	-	0.94	100	7	712	4086	294	1.13	100	19	710	4043	417	1.13	100
750	3	767	5233	351	1.16	100	3	738	4267	922	1.06	100	6	740	4175	775	1.03	100
775	-	-	-	-	-	-	1	769	4600	-	1.01	100	5	766	5075	427	1.12	100
800	2	819	5850	778	1.06	100	1	780	4800	-	1.01	100	2	787	4800	-	1.01	100
875	-	-	-	-	-	-	2	807	5850	849	1.11	100	4	813	5850	665	1.09	100
900	1	900	6400	-	0.88	100	-	-	-	-	-	-	1	880	-	-	-	-
950	1	974	11750	-	1.27	100	1	901	9100	-	1.24	100	2	901	7750	1909	1.06	100
975	-	-	-	-	-	-	-	-	-	-	-	-	1	974	11750	-	1.27	100
1000	-	-	-	-	-	-	-	-	-	-	-	-	1	999	-	-	-	-
1075	-	-	-	-	-	-	-	-	-	-	-	-	1	1020	-	-	-	-
													1	1090	-	-	-	-
TOTAL	148						148						386					
MEAN		577	2393	1368	1.13			602	2565	1128	1.11			595[a]	2430	1281	1.12	

[a] Includes fish tagged and released.

Table 3. Biological data by age group for lake trout caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
4	2	228	5.7	100	0	0.85	0	-	-	-	-	-	-	-	4	215	16.7	88	25	0.87	0
6	1	291	-	200	-	0.81	0	-	-	-	-	-	-	-	2	296	7.1	250	71	0.96	0
7	1	350	-	500	-	1.17	0	2	362	32.5	500	141	1.04	0	3	358	24.0	500	100	1.08	0
8	2	380	0.7	550	0	1.01	0	-	-	-	-	-	-	-	3	378	3.2	550	0	1.02	0
9	3	412	50.3	767	388	1.03	0	-	-	-	-	-	-	-	3	412	50.3	767	388	1.03	0
10	3	420	25.9	767	202	1.01	0	2	411	19.1	775	106	1.12	0	6	410	25.5	742	153	1.07	0
11	4	456	52.8	1088	453	1.10	25	1	531	-	2000	-	1.34	100	5	471	56.7	1270	566	1.15	40
12	4	520	32.1	1488	544	1.02	50	13	496	52.2	1415	458	1.13	38	17	502	48.4	1432	462	1.10	41
13	8	535	34.4	1756	319	1.14	63	13	515	35.0	1531	264	1.11	23	21	523	35.2	1617	300	1.12	38
14	10	520	41.6	1600	349	1.12	30	8	536	30.7	1744	369	1.12	25	19	523	39.7	1626	382	1.11	28
15	5	535	31.9	1780	362	1.15	60	3	547	84.5	1800	700	1.07	33	8	539	51.6	1788	463	1.12	50
16	6	547	25.6	1883	240	1.15	67	5	554	22.2	2050	221	1.20	80	11	550	23.2	1959	236	1.17	73
17	9	566	34.3	2033	305	1.11	100	10	592	22.8	2330	228	1.12	80	19	580	30.9	2189	301	1.12	89
18	8	574	38.9	2275	410	1.20	100	3	577	31.6	2283	404	1.18	100	11	575	35.5	2277	388	1.19	100
19	5	590	24.9	2250	141	1.10	100	5	643	47.1	2910	284	1.11	100	10	616	45.1	2580	407	1.11	100
20	8	628	91.9	2863	1176	1.11	100	8	614	39.7	2531	528	1.08	88	16	621	68.8	2697	897	1.10	94
21	3	620	18.4	2683	333	1.12	67	5	606	46.3	2480	593	1.09	80	8	613	36.9	2556	494	1.10	75
22	3	622	15.9	2583	284	1.07	67	12	647	28.2	2925	363	1.08	100	15	642	27.6	2857	367	1.08	93
23	6	583	65.2	2358	596	1.19	100	2	641	41.7	3150	495	1.20	100	8	598	63.1	2556	651	1.19	100
24	8	611	30.8	2481	382	1.10	100	11	656	52.5	3127	732	1.09	100	19	637	49.4	2855	679	1.09	100
25	9	624	51.8	2578	539	1.05	78	6	662	46.0	3350	933	1.13	100	15	639	52.2	2887	794	1.09	87
26	8	626	48.7	2988	606	1.22	100	3	622	33.2	2500	265	1.05	100	11	625	43.4	2855	569	1.17	100
27	3	744	204	6000	5007	1.26	100	7	679	62.9	3421	1046	1.07	100	10	698	114	4195	2802	1.13	100
28	2	659	65.8	3125	884	1.08	100	4	677	31.5	3625	676	1.16	100	6	671	39.4	3458	705	1.13	100
29	-	-	-	-	-	-	-	4	670	56.9	3863	801	1.28	100	4	670	56.9	3863	801	1.28	100
30	5	602	84.9	2790	794	1.33	100	5	625	47.1	2680	660	1.09	100	10	614	65.8	2740	690	1.21	100
31	1	713	-	4900	-	1.35	100	2	735	235	5625	4914	1.21	100	3	728	166	5383	3500	1.25	100
32	2	625	46.0	2775	742	1.12	100	2	731	9.9	3500	354	0.90	100	4	678	67.2	3138	633	1.01	100
33	4	763	119	4700	1514	1.05	100	2	672	36.1	2675	460	0.90	100	6	733	105	4025	1585	1.00	100
34	3	651	25.0	3050	433	1.10	100	1	720	-	3700	-	0.99	100	4	669	40.0	3213	480	1.07	100
35	4	714	90.4	4175	1674	1.11	100	1	645	-	2600	-	0.97	100	5	700	84.2	3860	1612	1.08	100
36	2	725	65.1	4500	566	1.19	100	1	649	-	3000	-	1.10	100	3	700	63.6	4000	954	1.16	100
37	-	-	-	-	-	-	-	1	666	-	2900	-	0.98	100	1	666	-	2900	-	0.98	100
38	1	592	-	2850	-	1.37	100	1	780	-	4800	-	1.01	100	2	686	133	3825	1379	1.19	100
40	1	602	-	2750	-	1.26	100	1	675	-	3500	-	1.14	100	2	639	51.8	3125	530	1.20	100
41	1	705	-	3700	-	1.06	100	1	813	-	6450	-	1.20	100	2	759	76.4	5075	1945	1.13	100
TOTAL	145							145							296						
MEAN		578	106	2388	1342	1.13			602	88.0	2559	1127	1.11			585	105.3	2432	1261	1.12	
MEAN AGE		20.8							20.8							20.4					

Table 4. Biological data by length interval for lake whitefish caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
	LENGTH(MM)		WEIGHT(G)			%	LENGTH(MM)		WEIGHT(G)			%	LENGTH(MM)		WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
150	-	-	-	-	-	-	-	-	-	-	-	-						
160	2	164	50	0	1.13	0	-	-	-	-	-	-	1	159	50	-	1.24	0
170	-	-	-	-	-	-	-	-	-	-	-	-	3	163	50	0	1.16	0
180	3	185	50	0	0.79	0	-	-	-	-	-	-	3	173	50	0	0.97	0
190	1	191	50	-	0.72	0	-	-	-	-	-	-	9	184	58	17	0.89	0
200	2	204	100	0	1.19	0	-	-	-	-	-	-	3	194	50	0	0.69	0
210	2	212	100	0	1.06	0	-	-	-	-	-	-	4	203	100	0	1.20	0
220	-	-	-	-	-	-	-	-	-	-	-	-	3	213	100	0	1.04	0
230	2	235	100	0	0.77	0	-	-	-	-	-	-	1	220	150	-	1.41	0
250	-	-	-	-	-	-	-	-	-	-	-	-	2	235	100	0	0.77	0
260	2	267	200	0	1.06	0	-	-	-	-	-	-	1	257	200	-	1.18	0
280	2	281	250	0	1.13	0	-	-	-	-	-	-	2	267	200	0	1.06	0
290	1	294	300	-	1.18	0	-	-	-	-	-	-	3	280	250	0	1.13	0
300	1	300	350	-	1.30	0	1	300	350	-	1.30	0	2	300	350	0	1.30	0
310	3	317	417	29	1.30	33	2	315	375	35	1.20	0	5	316	400	35	1.26	20
320	4	326	438	25	1.27	0	1	325	400	-	1.17	0	5	325	430	27	1.25	0
330	6	335	483	41	1.29	0	1	331	450	-	1.24	0	8	334	481	37	1.29	0
340	6	345	500	0	1.22	0	3	341	525	43	1.32	0	9	344	508	25	1.25	0
350	7	356	571	49	1.27	0	1	358	600	-	1.31	0	8	356	575	46	1.27	0
360	6	363	625	42	1.30	0	1	365	700	-	1.44	0	7	363	636	48	1.32	0
370	3	372	667	76	1.30	0	7	372	700	50	1.35	0	10	372	690	57	1.34	0
380	4	383	788	48	1.41	0	2	387	800	71	1.38	0	6	384	792	49	1.40	0
390	4	396	813	25	1.31	0	2	397	825	106	1.32	50	6	396	817	52	1.31	17
400	-	-	-	-	-	-	4	406	888	160	1.33	75	4	406	888	160	1.33	75
410	3	412	950	100	1.36	67	3	413	1067	115	1.52	67	6	412	1008	116	1.44	67
420	1	422	1100	-	1.46	100	2	423	1025	35	1.36	0	3	422	1050	50	1.39	33
430	1	432	1200	-	1.49	0	1	432	1250	-	1.55	100	2	432	1225	35	1.52	50
440	1	446	1300	-	1.47	0	1	440	1200	-	1.41	100	2	443	1250	71	1.44	50
450	6	454	1333	68	1.43	100	5	455	1310	42	1.39	20	11	454	1323	56	1.41	64
460	3	462	1467	76	1.49	100	2	469	1625	460	1.58	50	5	465	1530	251	1.52	80
470	3	477	1717	202	1.58	100	2	477	1825	106	1.68	0	5	477	1760	164	1.62	60
480	3	487	1683	153	1.45	100	1	485	1550	-	1.36	0	4	487	1650	141	1.43	75
490	6	494	1783	121	1.48	100	3	494	1817	76	1.51	100	9	494	1794	104	1.49	100
500	6	503	2142	551	1.68	100	2	507	2175	106	1.67	100	8	504	2150	468	1.68	100
510	5	515	2080	115	1.52	100	4	515	2288	347	1.67	100	9	515	2172	253	1.59	100
520	1	528	2000	-	1.36	100	3	522	2350	150	1.65	100	4	524	2263	214	1.58	100
530	8	533	2275	113	1.50	100	5	534	2410	167	1.58	100	13	534	2327	147	1.53	100
540	5	546	2500	137	1.54	100	5	542	2510	164	1.57	100	10	544	2505	142	1.56	100
550	9	554	2461	262	1.45	100	8	554	2775	273	1.63	100	17	554	2609	305	1.53	100
560	4	565	2713	232	1.51	100	7	565	2779	267	1.54	100	11	565	2755	245	1.53	100
570	6	575	3033	781	1.60	100	3	576	3117	375	1.63	100	9	575	3061	647	1.61	100
580	5	584	2950	292	1.48	100	6	583	3092	139	1.56	100	11	583	3027	222	1.53	100
590	-	-	-	-	-	-	1	590	3150	-	1.53	100	1	590	3150	-	1.53	100
600	2	603	3100	141	1.42	100	1	604	3400	-	1.54	100	3	603	3200	200	1.46	100
610	-	-	-	-	-	-	1	613	3150	-	1.37	100	1	613	3150	-	1.37	100
TOTAL	139						91						250					
MEAN		430	1405	992	1.37			480	1858	956	1.49			430	1466	1041	1.39	

Table 5. Biological data by age group for lake whitefish caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
1	2	176	14.8	50	0	0.95	0	-	-	-	-	-	-	-	4	178	11.4	50	0	0.90	0
2	3	186	4.0	50	0	0.77	0	-	-	-	-	-	-	-	12	181	12.3	50	0	0.87	0
3	4	216	11.2	100	0	1.01	0	-	-	-	-	-	-	-	10	207	15.8	100	24	1.14	0
4	1	200	-	100	-	1.25	0	-	-	-	-	-	-	-	1	200	-	100	-	1.25	0
5	3	279	47.6	250	180	1.01	0	-	-	-	-	-	-	-	3	279	47.6	250	180	1.01	0
6	5	315	46.3	410	216	1.21	20	-	-	-	-	-	-	-	6	306	47.8	375	212	1.20	17
7	5	319	30.7	400	106	1.21	0	3	344	66.7	567	375	1.26	0	9	323	44.7	439	229	1.22	0
8	2	320	38.1	400	141	1.20	0	2	447	40.3	1375	530	1.50	0	4	383	79.7	888	646	1.35	0
9	31	359	25.3	616	159	1.30	3	14	358	20.4	627	130	1.34	0	46	359	23.6	617	149	1.31	2
10	7	415	51.8	1100	489	1.45	29	5	443	48.7	1280	462	1.41	40	12	427	50.4	1175	465	1.43	33
11	8	488	32.1	1738	352	1.47	88	7	454	57.0	1443	645	1.47	57	15	472	47.2	1600	513	1.47	73
12	4	492	11.5	1788	131	1.50	100	8	501	53.4	2013	703	1.52	88	12	498	43.3	1938	576	1.51	92
13	12	483	49.3	1788	639	1.52	100	7	499	37.1	1964	458	1.55	57	19	489	44.9	1853	572	1.53	84
14	3	526	59.5	2817	1616	1.80	100	5	521	66.1	2280	812	1.55	100	8	523	59.3	2481	1095	1.64	100
15	8	524	49.3	2106	556	1.44	100	8	533	49.6	2325	583	1.51	100	16	528	48.0	2216	562	1.47	100
16	9	533	44.0	2261	640	1.46	100	2	549	17.7	2525	35	1.54	100	11	536	40.2	2309	583	1.47	100
17	5	548	5.4	2590	74	1.57	100	4	563	27.9	2750	436	1.54	100	9	555	19.0	2661	285	1.56	100
18	4	554	35.1	2825	296	1.72	100	3	566	11.1	3150	377	1.73	100	7	559	26.4	2964	348	1.73	100
19	1	565	-	2800	-	1.55	100	2	585	26.9	3200	283	1.60	100	3	578	22.2	3067	306	1.58	100
20	6	549	21.3	2433	366	1.47	100	2	540	22.6	2450	71	1.57	100	8	546	20.3	2438	310	1.49	100
21	1	602	-	3200	-	1.47	100	4	558	15.9	2988	214	1.72	100	5	567	24.0	3030	208	1.67	100
22	3	559	26.6	2433	548	1.38	100	2	587	37.5	2825	460	1.40	100	5	570	30.6	2590	499	1.39	100
23	1	575	-	2800	-	1.47	100	-	-	-	-	-	-	-	1	575	-	2800	-	1.47	100
24	-	-	-	-	-	-	-	1	590	-	3150	-	1.53	100	1	590	-	3150	-	1.53	100
TOTAL	128							79							227						
MEAN		420	114	1377	993	1.37			481	85.8	1862	945	1.49			426	124.6	1434	1042	1.38	
MEAN AGE	13.3							13.3							11.4						

Table 6. Biological data by length interval for round whitefish caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
	LENGTH(MM)		WEIGHT(G)			%	LENGTH(MM)		WEIGHT(G)			%	LENGTH(MM)		WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
160	-	-	-	-	-	-	-	-	-	-	-	-	1	162	50	-	1.18	0
170	-	-	-	-	-	-	-	-	-	-	-	-	1	171	50	-	1.00	0
180	-	-	-	-	-	-	1	189	50	-	0.74	0	3	187	50	0	0.77	0
210	-	-	-	-	-	-	-	-	-	-	-	-	1	210	50	-	0.54	0
300	1	304	300	-	1.07	100	1	307	200	-	0.69	100	2	306	250	71	0.88	100
310	-	-	-	-	-	-	2	315	375	35	1.20	100	2	315	375	35	1.20	100
320	2	326	375	35	1.09	100	3	326	367	29	1.06	100	5	326	370	27	1.07	100
330	-	-	-	-	-	-	3	331	367	58	1.01	100	3	331	367	58	1.01	100
340	3	343	417	29	1.03	100	2	345	425	35	1.03	100	5	344	420	27	1.03	100
350	1	358	500	-	1.09	100	4	353	500	58	1.13	100	5	354	500	50	1.12	100
360	2	366	550	71	1.13	100	2	366	525	35	1.07	100	4	366	538	48	1.10	100
370	1	378	700	-	1.30	100	2	372	575	35	1.12	100	3	374	617	76	1.18	100
400	-	-	-	-	-	-	1	406	650	-	0.97	100	1	406	650	-	0.97	100
440	-	-	-	-	-	-	1	442	1000	-	1.16	100	1	442	1000	-	1.16	100
TOTAL	10						22						37					
MEAN		345	460	120	1.10			342	450	182	1.05			321	399	206	1.04	

Table 7. Biological data by age group for round whitefish caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES							FEMALES							COMBINED					
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	162	-	50	-	1.18	0
3	-	-	-	-	-	-	-	1	189	-	50	-	0.74	0	4	183	8.1	50	0	0.83	0
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	210	-	50	-	0.54	0
8	-	-	-	-	-	-	-	2	319	10.6	350	0	1.09	100	2	319	10.6	350	0	1.09	100
9	4	324	14.9	375	65	1.10	100	3	321	12.5	317	104	0.94	100	7	323	12.8	350	82	1.03	100
10	-	-	-	-	-	-	-	5	337	15.4	420	27	1.10	100	5	337	15.4	420	27	1.10	100
11	2	354	6.4	450	71	1.02	100	4	356	5.4	513	48	1.14	100	6	355	5.2	492	58	1.10	100
12	2	366	2.1	550	71	1.13	100	2	388	25.5	600	71	1.03	100	4	377	19.7	575	65	1.08	100
13	-	-	-	-	-	-	-	1	369	-	550	-	1.09	100	1	369	-	550	-	1.09	100
14	1	378	-	700	-	1.30	100	-	-	-	-	-	-	-	1	378	-	700	-	1.30	100
16	-	-	-	-	-	-	-	1	442	-	1000	-	1.16	100	1	442	-	1000	-	1.16	100
TOTAL	9							19							33						
MEAN		346	24	467	125	1.11			341	49.3	453	190	1.06			318	70.3	395	215	1.04	
MEAN AGE	10.2							10.2							9.2						

Table 8. Biological data by length interval for cisco (spp) caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
150	1	153	50	-	1.40	100	1	159	50	-	1.24	0	2	156	50	0	1.32	50
160	5	165	50	0	1.11	80	2	169	50	0	1.05	100	9	166	50	0	1.10	75
170	3	176	50	0	0.92	67	4	172	50	0	0.98	100	7	174	50	0	0.96	86
180	16	183	50	0	0.82	81	7	185	50	0	0.79	86	24	184	50	0	0.81	79
190	14	194	50	0	0.69	93	12	197	63	23	0.82	100	26	195	56	16	0.75	96
200	9	202	78	26	0.94	89	11	203	68	25	0.82	82	20	203	73	26	0.87	85
210	5	214	90	22	0.92	80	3	212	100	0	1.05	100	8	213	94	18	0.97	88
240	-	-	-	-	-	-	2	243	150	0	1.05	100	2	243	150	0	1.05	100
350	-	-	-	-	-	-	-	-	-	-	-	-	1	358	550	-	1.20	-
370	1	373	800	-	1.54	100	1	375	800	-	1.52	100	2	374	800	0	1.53	100
380	-	-	-	-	-	-	1	386	750	-	1.30	100	1	386	750	-	1.30	100
400	-	-	-	-	-	-	-	-	-	-	-	-	1	407	900	-	1.33	-
410	-	-	-	-	-	-	1	413	900	-	1.28	100	1	413	900	-	1.28	100
420	2	422	1000	71	1.34	100	-	-	-	-	-	-	2	422	1000	71	1.34	100
TOTAL	56						45						106					
MEAN		201	105	201	0.89			208	117	192	0.91			207	120	211	0.91	

Table 9. Biological data by age group for cisco (spp) caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	188	-	50	-	0.75	0
2	1	182	-	50	-	0.83	0	1	203	-	50	-	0.60	0	2	193	14.8	50	0	0.71	0
3	11	190	17.5	84	23	0.91	64	6	188	15.1	67	26	0.99	67	18	188	16.7	64	23	0.95	61
4	5	171	8.2	50	0	1.00	80	3	171	14.3	50	0	1.02	67	8	171	9.8	50	0	1.01	75
5	6	189	11.2	50	0	0.75	100	9	193	13.4	56	17	0.78	100	15	191	12.3	53	13	0.77	100
6	24	194	9.8	58	19	0.79	96	16	197	8.7	66	24	0.85	100	40	195	9.4	61	21	0.82	98
7	3	203	10.4	83	29	0.98	100	2	203	0.7	75	35	0.91	100	5	203	7.4	80	27	0.95	100
8	-	-	-	-	-	-	-	2	243	2.8	150	0	1.05	100	2	243	2.8	150	0	1.05	100
9	1	421	-	950	-	1.27	100	-	-	-	-	-	-	-	1	421	-	950	-	1.27	100
10	1	373	-	800	-	1.54	100	-	-	-	-	-	-	-	1	373	-	800	-	1.54	100
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	407	-	900	-	1.33	-
12	1	422	-	1050	-	1.40	100	2	400	19.1	825	106	1.29	100	3	407	18.7	900	150	1.33	100
13	-	-	-	-	-	-	-	1	375	-	800	-	1.52	100	1	375	-	800	-	1.52	100
TOTAL	53							42							98						
MEAN		203	52	108	206	0.88			209	53.8	120	198	0.91			207	55.9	120	214	0.90	
MEAN AGE		5.7							5.7							5.5					

Table 10. Biological data by length interval for Arctic grayling caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
170	-	-	-	-	-	-	-	-	-	-	-	-	1	179	50	-	0.87	0
TOTAL	0						0						1					
MEAN		-	-	-	-			-	-	-	-			179	50	-	0.87	

Table 11. Biological data by age group for Arctic grayling caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES							FEMALES							COMBINED					
		LENGTH(MM)		WEIGHT(G)			%		LENGTH(MM)		WEIGHT(G)			%		LENGTH(MM)		WEIGHT(G)			%
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	179	-	50	-	0.87	0
TOTAL	0							0							1						
MEAN		-	-	-	-	-			-	-	-	-	-			179	-	50	-	0.87	
MEAN AGE	-							-							2.0						

Table 12. Biological data by length interval for burbot caught by experimental gillnets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
380	1	382	350	-	0.63	100	-	-	-	-	-	-	1	382	350	-	0.63	100
TOTAL	1						0						1					
MEAN		382	350	-	0.63			-	-	-	-			382	350	-	0.63	

Table 13. Biological data by age group for burbot caught by experimental gillnets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
7	1	382	-	350	-	0.63	100	-	-	-	-	-	-	-	1	382	-	350	-	0.63	100
TOTAL	1							0							1						
MEAN		382	-	350	-	0.63			-	-	-	-	-			382	-	350	-	0.63	
MEAN AGE		-							-							7.0					

Table 14. Biological data by length interval for lake trout caught by tagging nets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
175	-	-	-	-	-	-	-	-	-	-	-	-	1	190	50	-	0.73	0
275	-	-	-	-	-	-	-	-	-	-	-	-	1	282	250	-	1.11	0
300	1	305	300	-	1.06	0	-	-	-	-	-	-	2	303	300	0	1.08	0
325	-	-	-	-	-	-	2	330	375	35	1.04	0	2	330	375	35	1.04	0
350	1	351	450	-	1.04	0	-	-	-	-	-	-	1	351	450	-	1.04	0
375	-	-	-	-	-	-	1	391	550	-	0.92	0	1	391	550	-	0.92	0
400	2	411	775	35	1.12	0	1	418	800	-	1.10	0	3	413	783	29	1.11	0
425	2	444	925	35	1.06	0	3	433	967	176	1.18	0	5	437	950	127	1.13	0
450	1	469	1100	-	1.07	0	1	461	1100	-	1.12	0	2	465	1100	0	1.09	0
475	1	477	1350	-	1.24	0	1	495	1400	-	1.15	0	2	486	1375	35	1.20	0
500	2	511	1550	141	1.17	0	-	-	-	-	-	-	4	511	1550	141	1.17	0
525	4	541	1925	119	1.22	100	1	547	1950	-	1.19	0	15	541	1930	104	1.21	80
550	2	560	2075	106	1.18	100	-	-	-	-	-	-	24	560	2075	106	1.18	100
575	3	586	2167	355	1.07	67	2	597	2550	71	1.20	100	24	589	2320	329	1.12	80
600	1	620	2400	-	1.01	100	3	613	2717	189	1.18	67	35	610	2638	221	1.14	75
625	2	636	2950	141	1.15	100	-	-	-	-	-	-	21	638	2950	141	1.15	100
650	-	-	-	-	-	-	1	655	4000	-	1.42	100	22	658	4000	-	1.42	100
675	-	-	-	-	-	-	2	695	3700	283	1.10	100	11	688	3700	283	1.10	100
700	1	712	3500	-	0.97	100	1	720	4700	-	1.26	100	7	712	4100	849	1.11	100
725	-	-	-	-	-	-	-	-	-	-	-	-	3	740	-	-	-	-
750	-	-	-	-	-	-	-	-	-	-	-	-	4	761	-	-	-	-
775	-	-	-	-	-	-	-	-	-	-	-	-	2	785	-	-	-	-
800	-	-	-	-	-	-	-	-	-	-	-	-	3	817	-	-	-	-
825	-	-	-	-	-	-	-	-	-	-	-	-	4	834	-	-	-	-
850	-	-	-	-	-	-	-	-	-	-	-	-	2	862	-	-	-	-
875	-	-	-	-	-	-	-	-	-	-	-	-	1	890	-	-	-	-
900	-	-	-	-	-	-	-	-	-	-	-	-	2	916	-	-	-	-
925	-	-	-	-	-	-	-	-	-	-	-	-	1	945	-	-	-	-
TOTAL	23						19						205	[a]				
MEAN		521	1733	833	1.12			530	2042	1346	1.16			611	1761	1136	1.13	

[a] Includes fish tagged and released

Table 15. Biological data by age group for lake trout caught by tagging nets from Mosquito Lake, 1983.

AGE (YR)	MALES							FEMALES							COMBINED						
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	190	-	50	-	0.73	0
6	1	305	-	300	-	1.06	0	-	-	-	-	-	-	-	2	294	16.3	275	35	1.09	0
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	300	-	300	-	1.11	0
8	1	351	-	450	-	1.04	0	2	330	0.0	375	35	1.04	0	3	337	12.1	400	50	1.04	0
10	1	401	-	750	-	1.16	0	-	-	-	-	-	-	-	1	401	-	750	-	1.16	0
11	-	-	-	-	-	-	-	1	391	-	550	-	0.92	0	1	391	-	550	-	0.92	0
12	2	505	50.9	1525	601	1.15	50	3	444	18.1	1017	189	1.15	0	5	468	43.9	1220	431	1.15	20
13	4	455	39.3	1025	290	1.07	0	2	423	7.1	875	106	1.15	0	6	444	34.7	975	242	1.10	0
14	3	539	26.1	1933	257	1.23	67	1	495	-	1400	-	1.15	0	4	528	30.8	1800	339	1.21	50
15	1	530	-	1750	-	1.18	100	1	547	-	1950	-	1.19	0	2	539	12.0	1850	141	1.18	50
16	1	477	-	1350	-	1.24	0	-	-	-	-	-	-	-	1	477	-	1350	-	1.24	0
20	2	590	2.1	2325	318	1.14	100	1	595	-	2500	-	1.19	100	3	591	3.5	2383	247	1.15	100
22	2	552	11.3	2000	0	1.19	100	1	599	-	2600	-	1.21	100	3	588	28.3	2200	346	1.20	100
23	2	677	50.2	3275	318	1.06	100	1	655	-	4000	-	1.42	100	3	669	37.6	3517	475	1.18	100
29	-	-	-	-	-	-	-	1	605	-	2850	-	1.29	100	1	605	-	2850	-	1.29	100
30	1	620	-	2400	-	1.01	100	1	693	-	3500	-	1.05	100	2	657	51.6	2950	778	1.03	100
32	-	-	-	-	-	-	-	1	618	-	2800	-	1.19	100	1	618	-	2800	-	1.19	100
TOTAL	21							16							40						
MEAN		513	98	1674	835	1.13			502	115.1	1731	1164	1.15			489	121.1	1586	1020	1.13	
MEAN AGE	17.1							17.1							15.6						

Table 16. Biological data by length interval for lake whitefish caught by tagging nets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
	N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	SD	K	% MAT	N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	SD	K	% MAT	N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	SD	K	% MAT
150	-	-	-	-	-	-	-	-	-	-	-	-	1	155	50	-	1.34	0
160	-	-	-	-	-	-	-	-	-	-	-	-	2	167	50	0	1.07	0
170	-	-	-	-	-	-	-	-	-	-	-	-	3	170	50	0	1.01	0
180	-	-	-	-	-	-	3	184	58	14	0.93	0	5	184	65	22	1.03	0
190	-	-	-	-	-	-	-	-	-	-	-	-	2	196	75	35	0.99	0
200	-	-	-	-	-	-	1	202	75	-	0.91	0	2	204	88	18	1.04	0
260	-	-	-	-	-	-	-	-	-	-	-	-	1	262	250	-	1.39	0
300	1	304	350	-	1.25	0	-	-	-	-	-	-	1	304	350	-	1.25	0
310	1	316	400	-	1.27	0	1	311	350	-	1.16	0	2	314	375	35	1.22	0
330	1	331	500	-	1.38	0	-	-	-	-	-	-	1	331	500	-	1.38	0
340	2	346	575	35	1.39	0	-	-	-	-	-	-	2	346	575	35	1.39	0
350	-	-	-	-	-	-	1	355	600	-	1.34	0	1	355	600	-	1.34	0
360	2	361	600	71	1.27	0	-	-	-	-	-	-	2	361	600	71	1.27	0
380	1	383	750	-	1.33	0	-	-	-	-	-	-	1	383	750	-	1.33	0
410	-	-	-	-	-	-	1	412	1050	-	1.50	0	1	412	1050	-	1.50	0
440	-	-	-	-	-	-	1	446	1250	-	1.41	0	1	446	1250	-	1.41	0
470	-	-	-	-	-	-	1	476	1500	-	1.39	0	1	476	1500	-	1.39	0
480	-	-	-	-	-	-	1	480	1650	-	1.49	0	1	480	1650	-	1.49	0
490	2	492	1875	106	1.57	100	2	492	1875	106	1.57	50	4	492	1875	87	1.57	75
510	1	514	2250	-	1.66	100	-	-	-	-	-	-	1	514	2250	-	1.66	100
520	-	-	-	-	-	-	1	522	2050	-	1.44	100	1	522	2050	-	1.44	100
530	-	-	-	-	-	-	2	537	2450	71	1.58	100	2	537	2450	71	1.58	100
540	-	-	-	-	-	-	2	547	2625	35	1.61	100	2	547	2625	35	1.61	100
550	1	550	3500	-	2.10	100	-	-	-	-	-	-	1	550	3500	-	2.10	100
560	1	569	2750	-	1.49	100	-	-	-	-	-	-	1	569	2750	-	1.49	100
570	-	-	-	-	-	-	1	570	2750	-	1.48	100	1	570	2750	-	1.48	100
580	-	-	-	-	-	-	1	585	3000	-	1.50	100	1	585	3000	-	1.50	100
590	1	590	3150	-	1.53	100	-	-	-	-	-	-	1	590	3150	-	1.53	100
TOTAL MEAN	14	425	1411	1125	1.46		19	424	1492	1039	1.37		45	361	1090	1094	1.33	

Table 17. Biological data by age group for lake whitefish caught by tagging nets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
2	-	-	-	-	-	-	-	1	185	-	75	-	1.18	0	4	169	12.5	56	13	1.16	0
3	-	-	-	-	-	-	-	2	194	11.3	63	18	0.84	0	9	185	13.5	64	22	0.99	0
4	-	-	-	-	-	-	-	1	181	-	50	-	0.84	0	2	190	12.0	75	35	1.07	0
7	1	304	-	350	-	1.25	0	-	-	-	-	-	-	-	1	304	-	350	-	1.25	0
8	-	-	-	-	-	-	-	3	390	70.2	883	473	1.36	0	4	358	85.8	725	499	1.37	0
9	2	338	9.2	550	71	1.43	0	1	355	-	600	-	1.34	0	3	343	12.0	567	58	1.40	0
10	4	352	27.9	563	144	1.27	0	1	476	-	1500	-	1.39	0	5	377	60.6	750	437	1.30	0
11	1	382	-	650	-	1.37	0	1	490	-	1800	-	1.53	0	2	426	90.5	1225	813	1.45	0
12	1	492	-	1950	-	1.64	100	-	-	-	-	-	-	-	1	492	-	1950	-	1.64	100
13	1	514	-	2250	-	1.66	100	3	507	34.8	2083	513	1.58	67	4	509	28.6	2125	427	1.60	75
14	-	-	-	-	-	-	-	2	535	17.7	2325	389	1.51	100	2	535	17.7	2325	389	1.51	100
15	1	569	-	2750	-	1.49	100	2	537	2.8	2450	71	1.58	100	3	548	18.6	2550	180	1.56	100
16	1	590	-	3150	-	1.53	100	-	-	-	-	-	-	-	1	590	-	3150	-	1.53	100
18	1	492	-	1800	-	1.51	100	-	-	-	-	-	-	-	1	492	-	1800	-	1.51	100
21	1	550	-	3500	-	2.10	100	-	-	-	-	-	-	-	1	550	-	3500	-	2.10	100
24	-	-	-	-	-	-	-	1	570	-	2750	-	1.48	100	1	570	-	2750	-	1.48	100
TOTAL	14							18							44						
MEAN		425	103	1411	1125	1.46			415	141.5	1408	1001	1.36			356	150.0	1047	1067	1.33	
MEAN AGE		10.4							10.4							9.0					

Table 18. Biological data by length interval for round whitefish caught by tagging nets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
220	-	-	-	-	-	-	1	222	100	-	0.91	0	1	222	100	-	0.91	0
240	-	-	-	-	-	-	1	246	100	-	0.67	0	1	246	100	-	0.67	0
260	-	-	-	-	-	-	1	262	100	-	0.56	0	1	262	100	-	0.56	0
310	1	314	300	-	0.97	0	-	-	-	-	-	-	1	314	300	-	0.97	0
320	-	-	-	-	-	-	4	325	375	65	1.09	100	4	325	375	65	1.09	100
330	-	-	-	-	-	-	1	330	400	-	1.11	100	1	330	400	-	1.11	100
340	2	343	375	35	0.93	50	2	343	425	35	1.06	100	4	343	400	41	0.99	75
400	-	-	-	-	-	-	1	405	650	-	0.98	100	1	405	650	-	0.98	100
TOTAL	3						11						14					
MEAN		333	350	50	0.94			314	336	175	0.97			318	339	155	0.97	

Table 19. Biological data by age group for round whitefish caught by tagging nets from Mosquito Lake, 1983.

AGE (YR)	MALES							FEMALES							COMBINED						
		LENGTH(MM)		WEIGHT(G)			%		LENGTH(MM)		WEIGHT(G)			%		LENGTH(MM)		WEIGHT(G)			
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
6	-	-	-	-	-	-	-	3	243	20.1	100	0	0.71	0	3	243	20.1	100	0	0.71	0
8	-	-	-	-	-	-	-	2	327	3.5	400	71	1.15	100	2	327	3.5	400	71	1.15	100
9	1	314	-	300	-	0.97	0	3	338	7.6	417	29	1.08	100	4	332	13.7	388	63	1.05	75
10	-	-	-	-	-	-	-	1	320	-	300	-	0.92	100	1	320	-	300	-	0.92	100
11	2	343	3.5	375	35	0.93	50	1	326	-	400	-	1.15	100	3	337	9.8	383	29	1.01	67
15	-	-	-	-	-	-	-	1	405	-	650	-	0.98	100	1	405	-	650	-	0.98	100
TOTAL	3							11							14						
MEAN		333	17	350	50	0.94			314	51.4	336	175	0.97			318	46.3	339	155	0.97	
MEAN AGE		8.6							8.8							9.1					

Table 20. Biological data by length interval for cisco (spp) caught by tagging nets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
160	1	155	50	-	1.34	0	-	-	-	-	-	-	1	155	50	-	1.34	0
160	2	165	50	0	1.12	50	1	166	50	-	1.09	0	3	165	50	0	1.11	33
170	5	175	50	0	0.93	100	4	175	50	0	0.93	25	9	175	50	0	0.93	67
180	10	185	60	21	0.95	40	10	185	50	0	0.79	90	20	185	55	15	0.87	65
190	8	194	81	26	1.12	100	14	194	89	19	1.22	71	22	194	86	21	1.18	82
200	2	204	100	0	1.18	100	15	202	95	14	1.15	93	17	203	96	13	1.15	94
210	6	211	96	10	1.02	83	-	-	-	-	-	-	6	211	96	10	1.02	83
220	-	-	-	-	-	-	1	220	150	-	1.41	100	1	220	150	-	1.41	100
230	-	-	-	-	-	-	1	230	100	-	0.82	100	1	230	100	-	0.82	100
420	-	-	-	-	-	-	1	422	1050	-	1.40	100	1	422	1050	-	1.40	100
TOTAL	34						47						81					
MEAN		189	71	25	1.03			199	101	144	1.08			195	88	111	1.06	

Table 21. Biological data by age group for cisco (spp) caught by tagging nets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
3	6	178	13.0	67	26	1.18	50	8	192	19.4	69	26	0.96	25	14	186	17.8	68	25	1.05	36
4	3	173	14.2	50	0	1.00	33	4	188	10.3	63	25	0.92	50	7	181	13.6	57	19	0.96	43
5	3	189	15.6	67	29	0.95	100	11	191	11.0	73	24	1.02	91	14	190	11.4	71	24	1.01	93
6	18	194	12.0	74	25	1.00	78	14	195	7.3	86	23	1.14	93	32	194	10.1	79	25	1.06	84
7	4	200	15.1	88	25	1.07	100	7	202	11.1	100	29	1.19	100	11	201	12.0	95	27	1.15	100
10	-	-	-	-	-	-	-	1	422	-	1050	-	1.40	100	1	422	-	1050	-	1.40	100
TOTAL	34							45							79						
MEAN		189	15	71	25	1.03			199	36.1	101	147	1.07			195	29.2	88	113	1.06	
MEAN AGE	5.3							5.3							5.3						

Table 22. Biological data by length interval for Arctic grayling caught by tagging nets from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
360	1	362	50	-	0.11	100	-	-	-	-	-	-	1	362	50	-	0.11	100
410	-	-	-	-	-	-	1	410	100	-	0.15	100	1	410	100	-	0.15	100
TOTAL	1						1						2					
MEAN		362	50	-	0.11			410	100	-	0.15			386	75	35	0.13	

Table 23. Biological data by age group for Arctic grayling caught by tagging nets from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
6	-	-	-	-	-	-	-	1	410	-	100	-	0.15	100	1	410	-	100	-	0.15	100
8	1	362	-	50	-	0.11	100	-	-	-	-	-	-	-	1	362	-	50	-	0.11	100
TOTAL	1							1							2						
MEAN		362	-	50	-	0.11			410	-	100	-	0.15			386	33.9	75	35	0.13	
MEAN AGE	6.0							6.0							7.0						

Table 24. Biological data by length interval for lake trout caught by angling from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
300	1	317	300	-	0.94	0	-	-	-	-	-	-	1	317	300	-	0.94	0
500	-	-	-	-	-	-	-	-	-	-	-	-	1	504	-	-	-	-
525	-	-	-	-	-	-	-	-	-	-	-	-	6	536	-	-	-	-
550	-	-	-	-	-	-	-	-	-	-	-	-	6	564	-	-	-	-
575	3	596	2233	29	1.06	100	-	-	-	-	-	-	13	590	2233	29	1.06	100
600	-	-	-	-	-	-	2	616	2475	318	1.06	100	5	613	2475	318	1.06	100
625	-	-	-	-	-	-	-	-	-	-	-	-	4	637	-	-	-	-
650	-	-	-	-	-	-	-	-	-	-	-	-	1	651	-	-	-	-
675	-	-	-	-	-	-	1	675	3650	-	1.19	100	2	681	3650	-	1.19	100
700	-	-	-	-	-	-	1	700	3850	-	1.12	100	1	700	3850	-	1.12	100
850	-	-	-	-	-	-	-	-	-	-	-	-	1	852	-	-	-	-
TOTAL	4						4						41					
MEAN		526	1750	967	1.03			652	3113	763	1.11			592	2431	1087	1.07	

[a] Includes fish tagged and released.

Table 25. Biological data by age group for lake trout caught by angling from Mosquito Lake, 1983.

AGE (YR)	MALES N	MALES LENGTH(MM) MEAN	MALES LENGTH(MM) SD	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES LENGTH(MM) SD	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED LENGTH(MM) SD	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
8	1	317	-	300	-	0.94	0	-	-	-	-	-	-	-	1	317	-	300	-	0.94	0
18	-	-	-	-	-	-	-	1	615	-	2250	-	0.97	100	1	615	-	2250	-	0.97	100
20	1	598	-	2200	-	1.03	100	1	617	-	2700	-	1.15	100	2	608	13.4	2450	354	1.09	100
22	-	-	-	-	-	-	-	1	700	-	3850	-	1.12	100	1	700	-	3850	-	1.12	100
29	1	594	-	2250	-	1.07	100	-	-	-	-	-	-	-	1	594	-	2250	-	1.07	100
31	-	-	-	-	-	-	-	1	675	-	3650	-	1.19	100	1	675	-	3650	-	1.19	100
TOTAL	3						4								7						
MEAN		503	161	1583	1112	1.01			652	42.5	3113	763	1.11			588	126.0	2457	1171	1.07	
MEAN AGE	22.8						22.8								21.1						

Table 26. Biological data by length interval for tagged lake trout from Mosquito Lake, 1983.

LENGTH INTERVAL (MM)	NO.	PERCENT	MEAN FORK LENGTH(MM)	ROUND WEIGHT(G) MEAN	ROUND WEIGHT(G) SD
500	3	1	509	-	-
525	21	8	538	-	-
550	39	14	562	-	-
575	47	17	587	-	-
600	54	20	611	-	-
625	26	9	639	-	-
650	29	11	658	-	-
675	17	6	687	-	-
700	9	3	709	-	-
725	5	2	740	-	-
750	5	2	761	-	-
775	3	1	788	-	-
800	3	1	817	-	-
825	4	1	834	-	-
850	3	1	859	-	-
875	2	1	885	-	-
900	2	1	916	-	-
925	1	0	945	-	-
975	1	0	999	-	-
1000	1	0	1020	-	-
1075	1	0	1090	-	-
TOTAL	276				
MEAN			634	-	-

Table 27. Weight-length relationships, $\log_{10} W = a + b (\log_{10} L)$, for each fish species (sexes combined) from Mosquito Lake, Northwest Territories.

Species	N	Y-intercept (a)	Slope (b)	Standard Dev. of b (SD_b)	95% C.I.
Lake trout					
angled	8	-5.6041	3.2287	0.0949	2.9964-3.4609
gillnetted	303	-5.1166	3.0585	0.0302	2.9993-3.1177
combined	356	-5.1734	3.0794	0.0258	3.0289-3.1300
Lake whitefish	295	-5.9342	3.4108	0.01995	3.3717-3.4500
Round whitefish	51	-6.0397	3.4170	0.1058	3.2040-3.6300
Cisco (spp)	187	-5.9044	3.3816	0.1114	3.1633-3.6000
Arctic Grayling	3	0.4347	0.5514	0.7056	-8.4135-9.5163

Table 28. Fecundity of lake trout from Mosquito Lake, Northwest Territories.

Date	Fork Length (mm)	Weight (g)	Total Ovum Weight (g)	Ovum Diameter (mm)	Total Ovum Count
16 August	617	2700	264.0	5.0	2949
19 August	697	3900	530.3	5.3	4834
19 August	605	2850	452.6	5.2	4596
20 August	631	2500	224.5	3.8	4223
20 August	705	4000	455.4	4.4	6082
24 August	615	2250	409.8	4.9	4360
Mean	645	3033	389.4	4.8	4507

Table 29. Water temperature and dissolved oxygen profiles for Mosquito Lake, 1983.

Depth (m)	August 7		August 15		August 23	
	Temp (°C)	DO (ppm)	Temp (°C)	DO (ppm)	Temp (°C)	DO (ppm)
0	9.9	11.9	8.3	11.5	9.1	10.6
1	8.5	11.4	8.2	11.1	9.1	9.8
2	8.0	11.5	8.1	11.2	9.0	9.9
3	7.9	11.5	8.1	11.1	8.9	9.9
4	7.8	12.0	8.1	11.2	8.9	9.8
5	7.7	11.8	8.1	11.2	8.8	9.8
6	7.7	11.6	8.0	11.3	8.7	9.8
7	7.7	11.2	7.9	11.4	8.5	9.7
8	7.5	11.4	7.8	11.4	8.5	9.7
9	7.4	11.2	7.7	11.4	8.4	9.8
10	7.4	11.7	7.5	11.4	8.4	9.8
11	7.3	11.4	7.5	11.4	8.4	9.7
12	7.2	11.2	7.3	11.4	8.3	9.7
13	7.2	11.2	7.2	11.4	8.3	9.7
14	7.0	11.2	7.2	11.4	8.3	9.7
15	6.6	10.6	7.2	11.2	8.2	9.5
16	6.6	10.1	7.2	11.2		
17	6.6	10.1				
18	6.6	9.8				
19	6.6	9.8				
20	6.5	9.7				
21	6.5	9.6				
22	6.5	9.7				
23	6.5	9.7				
24	6.5	9.7				

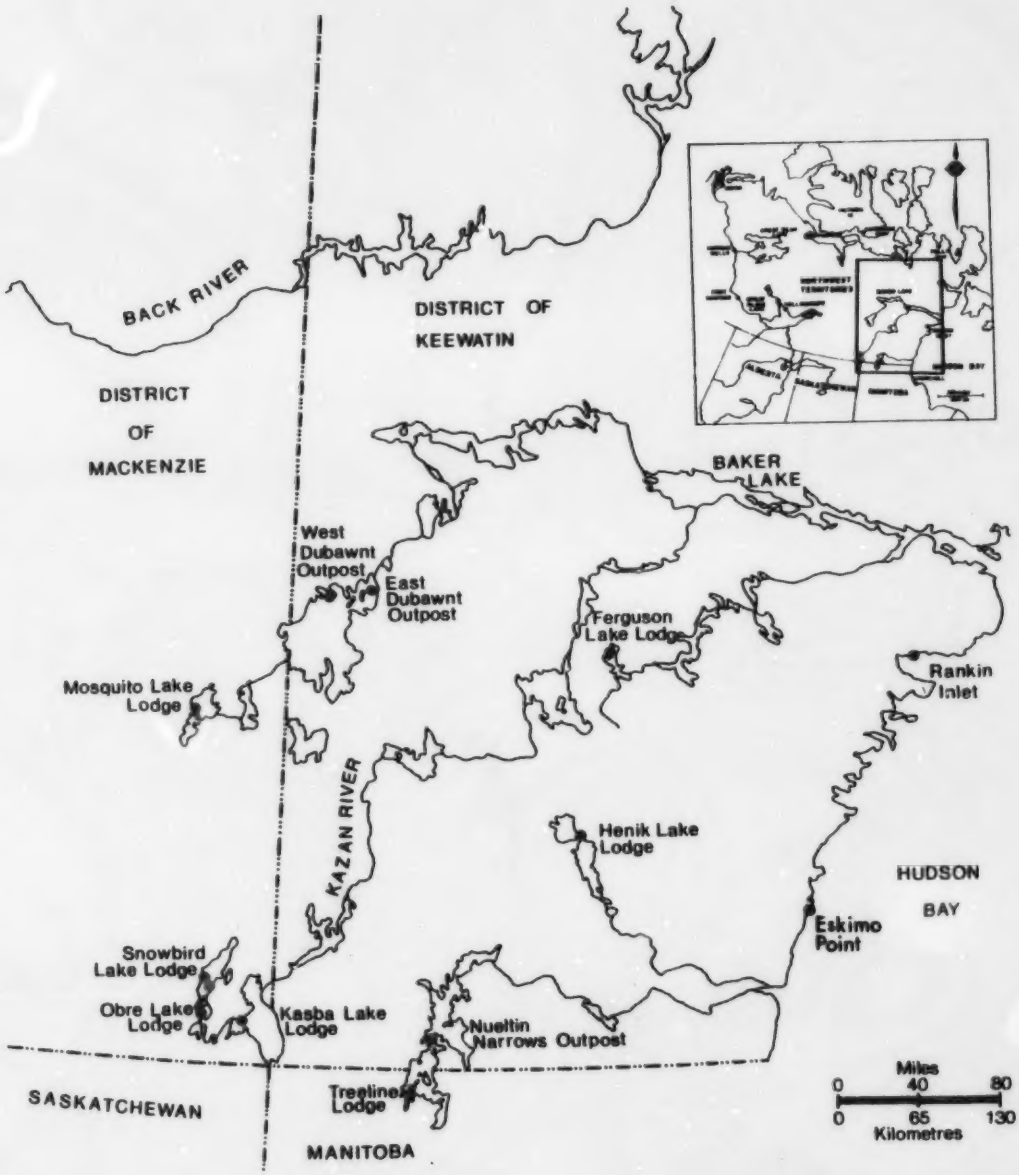

Fig. 1. Map of the District of Keewatin, N.W.T. showing the locations of sport fishing lodges and outpost camps.

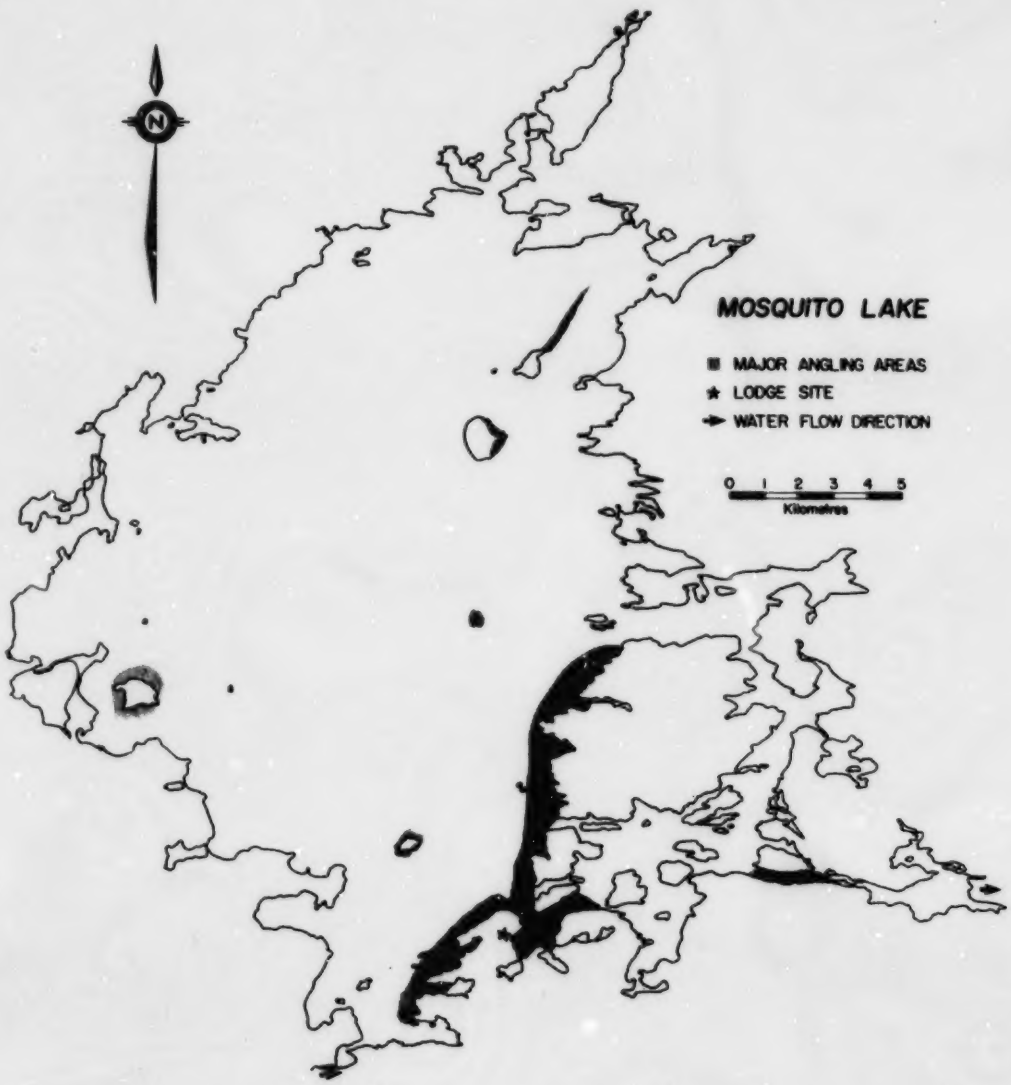

Fig. 2. Map of Mosquito Lake showing the locations of Tukto lodge and the areas generally fished for lake trout.

Fig. 3. Map of Mosquito Lake showing the experimental gillnet locations and tagging sites, 1983.

Appendix 1. Summary of information on sample dates, sample locations, set duration, depths and catch per unit of effort for experimental gillnets and tagging nets on Mosquito Lake, 1983.

Date[1]	Set Number	Location Number	Set Duration (h)	Water Depth (m)	Total[2] Catch (kg)	CPE[3]
August 1 T[1]	1	1	20.0	4.0-18.0	53.5	44.0
2	1	2	19.7	6.0-22.0	222.7	58.5
2 T[1]	2	1	23.1	4.0-18.0	66.9	26.3
2 T[1]	3	3	6.8	4.0-18.0	24.3	47.1
3 T[1]	4	2	6.8	8.0-18.0	2.6	4.7
4	2	4	22.5	3.0-2.0	233.2[4]	61.9
6	3	3	39.3	4.5-6.5	316.2[4]	38.1
7	4	5	17.4	4.5-7.0	211.3	56.3
8	5	4	18.2	2.0-19.0	163.7	64.4
9	6	5	17.4	3.0-8.0	29.6	77.2
10	7	6	19.4	2.5-14.0	53.1	27.7
12 T[3]	3	7	18.4	3.0-12.0	129.5	103.8
14 T[3]	3	6	21.7	6.0-19.0	149.3	111.9
16 T[2]	5	7	7.3	4.0-10.0	42.2	34.5
17 T[2]	5	8	6.8	3.0-7.0	10.5[4]	7.1
18 T[1]	5	8	6.6	2.5-7.5	27.9	58.2
19 T[1]	5	9	6.8	3.5-7.0	46.9	87.1
20	8	10	24.0	11.0-5.5	110.6	62.0
20 T[1]	5	9	6.0	2.0-2.5	8.7	21.3
21 T[1]	1	11	6.2	5.5-21.0	2.0	46.5
21 T	1	10	5.7	5.0-11.0	24.1	33.7
22 T[1]	5	12	6.1	2.0-2.5	0.0	3.6
22 T[1]	1	11	5.4	5.0-11.0	3.8	5.9
23 T[1]	3	13	6.8	6.0-21.0	15.4	105.9
23 T[1]	3	14	6.9	3.0-12.5	9.3	7.0

[1] Date only indicates standard gang; T = tagging gang of 1x38 mm and 1x64 mm mesh. T = 100 m gang; T[1] = 150 m gang; T[2] = 200 m gang, T[3] = 250 m gang.
[2] Includes estimated weight of fish tagged and released only.
[3] Catch per unit of effort for standard gillnet sets (No. fish/100 m gillnet/24 h).
[4] Total catch weighed.